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SARCOMA AND CIRRHOSIS OF THE LIVER.

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THE combination of carcinoma and cirrhosis of the liver was pointed out by Finley and Adami in the *Montreal Medical Journal*, April, 1895, when they reported a case which showed these two different pathological conditions. Their case was followed by a paper by Fussell and Kelly, of Philadelphia, read before the Association of American Physicians, in which two other cases of a similar combination were presented.

The association of cirrhosis of the liver and carcinoma of this organ is readily explained when we remember the presence in the liver of many structures epithelial in character. The association of sarcoma and cirrhosis of the liver is possibly rarer than the association of carcinoma and cirrhosis, and the presence of the former variety of tumor is more difficult to explain than the presence of the latter.

The following case, which occurred in Dr. Finley's wards in the Montreal General Hospital, and which by his kind permission is here reported, represents a combination of an extreme grade of cirrhosis of the liver, with a large tumor mass in the right lobe, made up of sarcomatous tissues, and a number of secondary nodules scattered throughout the peritoneal cavity.

History. L. P., male, aged fifty-nine years, admitted February 15, 1900. When admitted the patient was incoherent, with a thick, halting speech, and quite unable to give any clear account of his illness. The meagre facts gained on careful questioning showed that he had used alcohol, in the form of gin and whiskey, to excess for a number of years, and had suffered from comparatively no illness of any duration up to his present attack. He stated that for three or four months he had a slight cough, with a little expectoration. He left work a month ago, because, he said, of cold sensations.

Three or four days before admission the patient's sister died, and he went on a long spree, lasting for forty-eight hours. The day before entrance into the hospital, while the patient was being shaved, he had an attack of cerebral paralysis, after which he was unable to raise his left arm or to move his left leg. He suffered from left-sided headache at the same time. A swelling of the abdomen, which the patient said began several days before the paralysis, increased with great rapidity subsequent to this seizure.

Condition on Admission. Patient is a man aged about sixty-five years, whose speech is so thick and indistinct as to render answers to questions almost unintelligible. He is extremely drowsy, the skin is muddy, and there are a few stellate veins about the nose, cheeks and forehead; subcutaneous fat moderate in extent, and muscles of fair size

and firmness. The abdomen is greatly distended; the surface is covered with scratch marks, showing a slight dilatation of the superficial veins. There is dullness in both flanks, which changes to resonance with the shifting of the patient's body. The liver dullness extends from the fifth rib to the costal border, measuring three inches in nipple line; neither liver nor spleen is palpable.

The heart sounds are distant and feeble, apex impulse not palpable; pulse small and feeble, 120 to the minute. There is slight cyanosis of finger nails.

Complete left hemiplegia, the face being slightly drawn to the right side, the left labio-nasal fold shallower than the right. The left hand and arm and the left leg are quite powerless, the arm is held flexed across the chest; there is no rigidity of either extremity. The patellar reflexes are increased, the plantar present on the right side, absent on the left.

The day after admission the patient's condition became much worse. He developed great restlessness, and a dull, drowsy stupor; articulation was greatly impaired, and the pulse much diminished in strength and frequency; temperature between 97° and 98°. The patient died about midnight of the second day.

Diagnosis during Life. Cirrhosis of the liver and abdominal ascites, left-sided hemiplegia, and right-sided thrombosis of the cerebral vessels.

The autopsy was performed the day following the death of the patient.

Autopsy Notes. Body of a large, well-developed man of medium height; no jaundice; lips and mucous membranes pale; mouth and pharynx filled with clear watery fluid; marked lividity of dependent parts of the body, and complete rigor mortis in arms and legs; no petechia of skin; external genitalia normal.

Thorax: A few pleural adhesions at apex of right lung. Hypostatic congestion of both bases with slight acute inflammation of the walls of the larger bronchi. No areas of pneumonia or tuberculous consolidation. Pleural cavities free from fluid.

Larynx: Congested and slightly oedematous.

Thyroid: Normal.

Heart: Not enlarged; no pericardial adhesions; a thick layer of pericardial fat. Mitral valves thickened; aortic valves normal. Aorta not calcified. Heart muscle brownish.

Abdomen contains 4000 c.c., pale-yellow ascitic fluid, not blood-stained. Mesentery and omentum filled with small nodules the size of a pea, white or reddish; similar nodules scattered over peritoneal surface of abdominal muscles and of the diaphragm. The omentum was so filled with these nodules as to form a hard, stiff, ridge-like swelling, palpable just below the costal margin. Stomach and intestines normal; rectum normal.

Liver: The edge does not reach the costal margin. It is considerably shrunken in size, the surface hard, very rough, and granular. About the middle of the liver is a band of more nearly normal hepatic parenchyma which projects some distance from the otherwise hard and cirrhotic organ. On section the liver cuts with great difficulty, the fibrous tissue being greatly increased. The fibrosis is irregular in distribution, practically no normal hepatic tissue being left. The cut surface is a pale gray in color. In the right lobe of the liver is a large tumor mass about 5x8 cm. in dimensions. About a soft, white friable centre is a dense, hard peripheral zone, grayish-white in color.

Portal vein normal ; no thrombosis.

Kidneys : Small, contracted, capsule strips off with great difficulty, leaving a slightly roughened, puckered surface. On section the fibrous tissue is much increased.

Pancreas : Normal ; no hemorrhages.

Spleen : Not enlarged ; capsule is soft, pale, and smooth. On section cortex and medulla are paler than normal.

Suprarenals : Normal.

Bladder : Contracted and muscle-wall thickened ; mucous membrane normal.

Prostate : Enlarged and fibrous.

Brain : Meninges normal. The Sylvian artery on the left side just at its branching is occupied by a rather firm thrombus, whitish or grayish-white in color, slightly adherent to the walls of the vessel. On section the brain is normal. No areas of softening to be made out in any portions.

Microscopical Examination of the Liver. Microscopical examination of various portions of the liver reveals almost pure fibrous tissue infiltrated with small round cells and small spindle cells, only a few liver cells being left intact. In some areas there is a well-marked fatty degeneration of the liver cells, with considerable injection of the capillaries where the liver lobules can be made out; the cirrhosis is seen to be *interlobular* in character, while in much of the organ the lobules have been quite destroyed by the new tissue, thus representing a condition of *intra-lobular* cirrhosis as well.

Microscopical examination of the tumor in the right lobe of the liver shows the central part to be composed of necrosed, broken-down, sarcomatous bodies, and the periphery to consist of dense fibrous tissue infiltrated with small round and spindle cells. The central part stains badly, but shows chiefly sarcomatous cells—both spindle cells and round cells.

Nodules in the peritoneum are found to be composed of similar spindle cells, with many bloodvessels scattered through the matrix of fibrous tissue.

Anatomical Diagnosis. Hypostatic congestion of lungs ; congestion of larynx and trachea ; sclerosis of mitral valves ; cirrhosis and sarcoma of liver, with secondary nodules in mesentery, omentum, and peritoneum ; hypertrophy of prostate and of muscle-wall of the bladder ; thrombosis of Sylvian artery, left side.

The presence of cirrhosis of the liver in this case is explained by the intemperate habits of the patient, who had evidently been a chronic alcoholic. The liver corresponds in type to the ordinary *atrophic cirrhosis* of Lennec or the alcoholic cirrhosis, and the clinical history of the patient and the development of ascites are both explained by the condition of this organ.

The presence of the huge mass of sarcomatous tissue in the right lobe of the liver is somewhat more difficult to explain. It is a definite sarcoma of a combination of round and spindle cells. Sarcoma of the liver occurs in two varieties, primary and secondary. The primary sarcomas are exceedingly rare, and it has often been doubted by pathologists whether they ever do occur. Genuine cases are recorded, however,

by Horup, Lancereaux, Arnold, Windrath, Waring, von Kahlden and others. Such tumors are said to arise from the walls of the portal vein and from the smaller bloodvessels, and von Kahlden states that frequently older cirrhotic changes in the liver exist as well. While the presence of cirrhotic changes is admitted by Quincke and Hoppe-Seyler to be a possible factor in causing the development of *carcinoma* of the liver, they do not admit that a similar cirrhotic condition is capable of producing *sarcomatous* growths. Those writers who believe that cirrhosis may cause sarcoma, do not quote any cases in which such a definite combination has been seen.

Secondary sarcomas occur in the form of metastatic tumor nodules scattered through the substance of the liver, or in the form of a diffuse sarcomatous infiltration. The primary seat of such a tumor is usually the skin or the choroid coat of the eye. The most frequent variety of secondary sarcomas is the melanotic sarcoma, the metastases of which give the liver a dark-brown or black appearance on section. The present sarcoma was not melanotic, and the pigmented coat of the eye and of the skin may be eliminated as a primary seat for this growth.

Its presence as a large tumor nodule in one lobe of the liver, unassociated with any other nodules of this organ and unassociated with any tumor nodules in other parts of the body, except the small metastases in the peritoneum and omentum, point to its being possibly primary in the liver. This cannot be stated with positiveness, however, for it is impossible to eliminate as the primary cause of any tumor masses in the liver a tumor of some one of the other organs, or some variety of cutaneous tumor which might have been removed years prior to the autopsy. It is a common occurrence in large autopsy-rooms to find secondary tumor masses in the internal organs of the body which give comparatively few symptoms during life, and which are not necessarily the cause of death, the presence of which is explained only by the discovery that the patient had, possibly some years previous to his death, some tumor removed from the skin or subcutaneous tissues.

The pea-sized bodies in the omentum and in the peritoneum were evidently derived from the tumor of the liver, or possibly from that tumor, which might have been the primary seat of both. At any rate, the presence of the sarcomatous mass in the liver is not explained unless it be considered as a primary tumor, and its association with cirrhosis of this organ must be considered quite unique. The examination of the literature of cirrhosis of the liver, especially the standard textbooks and the various medical indices, fails to reveal any quotations of a similar combination of sarcoma and cirrhosis, although such cases have doubtless been already reported, possibly under different names, yet the combination represented by the present case is, as far as we know, the first case to be reported in this country.